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EXAMINER

VU, THONG H

ART UNIT PAPER NUMBER

2142

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/025,017

Applicant(s)

SHU ET AL.

Examiner

Thong H. Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

1. Claims 1-36 are pending.
2. The New abstract is acceptable and enter to the record.

Response to Arguments

3. Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection. Claims 1,6,8,27,29,33 have been amended. The Final action is appropriate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayama et al [Nakayama, 6,661,775 B1] in view of Eaton et al [Eaton, 5,956,640].

4. As per claim 1, Nakayama discloses An apparatus for transmitting a file through a network, apparatus comprising:

into a plurality of message a file-splitting processor for splitting a file addresses to each segments the plurality of message segments; and a message segment transmitter for transmitting the plurality of message segments to the receiving host using the plurality of destination addresses [Nakayama, the file should be splitted into the subset of pieces required to reconstruct the file at the destination, col 2 lines 25-40; sender router and receiver router, col 43 lines 30-57; IP addresses, col 3 lines 58-col 4 line 5].

However Nakayama does not detail “and assigning one of a plurality of destination addresses to each segment and the plurality of destination addresses being assigned to a receiving host”.

An skill artisan would have motivation to improve the packet transmission over the network and found Eaton teaching. Eaton discloses in a messaging transmission system wherein a receiving device is assigned one or more addresses [Eaton, Fig 10 col 9 lines 4-10; Fig 14; col 12 lines 8-15]

Therefore it would have been obvious to an ordinary skill in the art at the time the invention was made to incorporate the receiving node/host with a plurality of addresses as taught by Eaton into the Nakayama’s apparatus in order to utilize the redundancy routing service over Internet. Doing so would provide an expected quality of service guarantee in packet switching networks [Nakayama, col 1 lines 5-10]

5. As per claim 2, Nakayama-Eaton disclose the file splitting processor further comprises a file converter that-for converting the file into N message segments such that the file is reassemblable from a subset of any K of the message segments at the receiving host, N and K are being positive integer and $N > K > 1$ [Nakayama, file splitted in the subsets and reconstruction at the destination, col 3 lines 1-12].

6. As per claim 3 Nakayama-Eaton disclose the file-splitting processor is configured for assigning one of a plurality of source addresses to each of the plurality of message

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segments; thereby impeding attempts to ascertain the source of the file [Nakayama, source and destination router, col 3 line 58-col 4 line 5].

7. As per claim 4 Nakayama-Eaton disclose a message segment monitor for detecting non-receipt of a subset of the plurality of message segments [Nakayama, upon identifying a RWD packet, col 4 lines 1-5].

8. As per claim 5 Nakayama-Eaton disclose an address allocator for assigning a subset of the plurality of destination addresses to the receiving host [Eaton, a receiving device is assigned one or more addresses Fig 10 col 9 lines 4-10; Fig 14 col 12 lines 8-15].

9. Claims 6-7 contain the similar limitations set forth in claims 1,3. Therefore, claims 6,7 are rejected for the same rationale set forth in claims 1,3.

10. Claims 8-10 contain the similar limitations set forth in claims 1,5,2 respectively. Therefore, claims 8-10 are rejected for the same rationale set forth in claims 1,5,2.

11. As per claim 11 Nakayama-Eaton disclose assigning N destination addresses to the receiving host, and wherein the N message segments are addressed using one of the N destination addresses assigned to the receiving host [Eaton, a receiving device is assigned one or more addresses Fig 10 col 9 lines 4-10; Fig 14 col 12 lines 8-15].

12. As per claim 12 Nakayama-Eaton disclose causing the receiving host to cease receiving messages on at least one of the N destination addresses in response to an attack on the at least one of the destination address as a design choice.

13. As per claim 13 Nakayama-Eaton disclose the receiving host ceases to receiving messages via no more than (N--K) destination addresses, thereby facilitating reassembly of the file by the host as a design choice.

14. As per claim 14 Nakayama-Eaton disclose (e) reassembling the N message segments into a reassembled file at the receiving host [Nakayama, reconstruct at destination, col 3 lines 1-12]; (f) splitting the reassembled file into a second set of N message segments at the receiving host [Nakayama, reconstruct at destination, col 3 lines 1-12]; and
(g) transmitting the second set of N message segments from the receiving host using the N destination addresses [Nakayama, file transmitted, col 3 lines 30-57].

15. As per claim 15 Nakayama-Eaton disclose (d) retransmitting the plurality of message segments from the receiving host as design choice.

16. As per claim 16 Nakayama-Eaton disclose retransmitting the plurality of message segments from the receiving host comprises retransmitting the plurality of message

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segment to at least two of a plurality of intermediate hosts, thereby relaying the plurality of message segments along more than one path through the network [Nakayama, intermediate routers, col 3 lines 12-28, Fig 1].

17. As per claim 17 Nakayama-Eaton disclose (d) selecting as a virtual network comprising a plurality of hosts, the plurality of hosts including the receiving host

[Nakayama, virtual network, col 4 lines 15-25]; and

(e) assigning each one host of the plurality of hosts to one a domain of a plurality of domains [Nakayama, domain, col 13 line 62-col 145 line 22], and

(f) designating sets of the host pairs. each host pair comprising two hosts assigned to the same domain or a neighboring domain [Nakayama, next domain, col 13 line 62-col 145 line 22]; and

(g) constraining travel of each message segment one of the plurality of message segments to the receiving host via relays between host pairs [Nakayama, source-destination pair, col 13 line 62-col 145 line 22],

18. As per claim 18 Nakayama-Eaton disclose (d) assigning a source address selected from a plurality of source addresses to each message segment of the plurality of message segments, thereby impeding attempts to ascertain the source of the file [Eaton, a receiving device is assigned one or more addresses Fig 10 col 9 lines 4-10; Fig 14 col 12 lines 8-15].

19. As per claim 19 Nakayama-Eaton disclose (d) receiving at the receiving host at least a portion of the plurality of message segments

(e) reassembling the file from the received message segments at the receiving host [Nakayama, reconstruct at destination, col 3 lines 1-12];

(f) splitting the reassembled file into a second plurality of message segments at the receiving host [Nakayama, file splitted to the subset of pieces, col 3 liens 1-12]; and

(g) transmitting the second plurality of message segments from the receiving host [Nakayama, file transmitted, col 3 lines 30-57].

20. As per claim 20 Nakayama-Eaton disclose (c) comprises transmitting the plurality of message segments to at least one of an intermediate host and a destination host [Nakayama, intermediate router and receiver router, col 3 lines 12-28].

21. As per claim 21 Nakayama-Eaton disclose wherein step (c) comprises transmitting from at least one of a source host and an intermediate host [Nakayama, intermediate router and sender router, col 3 lines 12-28].

22. As per claim 22 Nakayama-Eaton disclose (d) monitoring non-receipt by the receiving host of at least the plurality of message segments [Eaton, monitoring system, col 10 lines 38-45]

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23. As per claim 23 Nakayama-Eaton disclose (d) allocating M destination addresses for assignment to the receiving host; (e) assigning N destination addresses of the M allocated destination addresses, where N is less than or equal to M [Eaton, a receiving device is assigned one or more addresses Fig 10 col 9 lines 4-10; Fig 14 col 12 lines 8-15]; and

(e) periodically reassigning to the receiving host at least a portion of the N destination addresses [Nakayama, scheduling, col 1 lines 38-58].

24. As per claim 24 Nakayama-Eaton disclose (d) periodically reassigning at least a subset of the plurality of destination addresses assigned to the receiving host while leaving at least K of the destination addresses unchanged thereby permitting continuous receipt of messages by the receiving host [Eaton, a receiving device is assigned one or more addresses Fig 10 col 9 lines 4-10; Fig 14 col 12 lines 8-15], and (e) notifying at least a portion of the network of the reassigned destination addresses [Eaton, alert signal, col 13 lines 6],

25. As per claim 25 Nakayama-Eaton disclose (d) adding status information associated with a sending host to the message segment [Eaton, status 1212, col 10 line 3]; and (e) upon receipt by the receiving host interpreting the status information to detect tampering with message segment transmission [Eaton, detects information, col 13 lines 8-22].

26. As per claim 26 Nakayama-Eaton disclose (d) encoding the file to produce an encoded bit tile having encoded bits, and (e) scrambling the encoded bits, such that the encoded bit file is split into a plurality of message segments [Nakayama, encoded, col 13 line 10].

27. As per claim 27 Nakayama-Eaton disclose A method of secure transmitting a file through a network, the method comprising:

(a) splitting the file into a plurality of message segments at a source host [Nakayama, file splitted in the subset, abstract];

(b) at the source host, assigning one source address of a plurality of source addresses to each message segment of the plurality of message segments, thereby disguising the origin of the file [Eaton, a receiving device is assigned one or more addresses Fig 10 col 9 lines 4-10; Fig 14 col 12 lines 8-15]; and

(c) transmitting the plurality of message segments [Nakayama, file transmitted, col 3 lines 30-57] .

28. As per claim 28 Nakayama-Eaton disclose (d) assigning one destination address of a plurality of destination addresses assigned to a receiving host to each message segment of the plurality of message segments [Eaton, a receiving device is assigned one or more addresses Fig 10 col 9 lines 4-10; Fig 14 col 12 lines 8-15].

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29. As per claim 29 Nakayama-Eaton disclose A method for securely transmitting a file through a network, the method comprising:

(a) splitting the file into a plurality of message segments, each message segment comprising a destination specifier, encrypted protocol information and encrypted message data [Nakayama, encoded, col 13 line 10]

(b) receiving a message segment at a receiving host [Eaton, decode, col 7 lines 37-67];

(c) decrypting the message data to determine a destination host [Eaton, decode, col 7 lines 37-67];

(d) encrypting the message data in accordance with an encryption protocol accessible to the destination host [Nakayama, encoded, col 13 line 10]

(e), transmitting the encrypted message segment to the destination host [Nakayama, encoded, col 13 line 10]; and

(f) repeating steps (a)-(d:) for other message segments, thereby facilitating recovery of the message by the destination host.

30. As per claim 30 Nakayama-Eaton disclose the message segment has a length, and further comprising altering the length [Nakayama, length, col 5 lines 30-39].

31. As per claim 31 Nakayama-Eaton disclose the receiving host and the destination host negotiate to determine the encryption protocol [Nakayama, encoded, col 13 line 10].

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32. As per claim 32 Nakayama-Eaton disclose causing the receiving host to adding status information concerning the receiving host to the message segment, and at the receiving host interpreting the status information to detect tampering with message segment transmission [Eaton, status 1212, col 10 line 3; detects information, col 13 lines 8-22].

33. As per claim 33 Nakayama-Eaton disclose A method for defining and operating a network topology to camouflage network traffic patterns and volume, the network comprising a plurality of hosts, the method comprising:

(a) assigning each one host of the plurality of hosts to a first domain of a plurality of domains [Nakayama, domain, col 13 line 62-col 14 line 22]; and

(b) restricting network traffic to message transmission among hosts within the same domain or a neighboring domain, thereby defining multiple redundant relay paths among hosts, camouflaging message sources and destinations [Nakayama, adjacent virtual nodes, col 14 lines 5-15].

34. As per claim 34 Nakayama-Eaton disclose (c) reassigning at least one host of the plurality of the hosts to a second domain of the plurality of domains, thereby changing network traffic patterns [Eaton, a reception pattern, col 2 lines 28-30, Fig 12].

35. As per claim 35 Nakayama-Eaton disclose (d) assigning one of a plurality of addresses selected from a pool of addresses with each one of the plurality of hosts; (e)

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reassigning at least one of the plurality of assigned addresses from the pool of addresses [Eaton, a receiving device is assigned one or more addresses Fig 10 col 9 lines 4-10; Fig 14 col 12 lines 8-15]; and

(f) notifying the plurality of hosts of the reassigned addresses [Eaton, alert signal, col 13 lines 6].

36. As per claim 36 Nakayama-Eaton disclose a portion of the plurality of addresses is reassigned at any one time to permit the reassigned for notifying the plurality of hosts of the reassigned addresses [Eaton, alert signal, col 13 lines 6].

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thong Vu*, whose telephone number is (571)-272-3904. The examiner can normally be reached on Monday-Thursday from 8:00AM- 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, *Andrew Caldwell*, can be reached at (571) 272-3868. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval IPAIRI system. Status information for published applications may be obtained from either Private PMR or Public PMR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thong Vu
Patent Examiner
Art Unit 2142

